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May 3, 2019

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PLANNING BOARD
GRAFTON, MA

EXHIBIT 8

Joseph Laydon
Town Planner
Grafton Municipal Center
30 Providence Road
Grafton, MA 01519

Subject: "Meadowbrook Manor"
15 Meadowbrook Road
Definitive Plan Review

Dear Joe:

We received the following documents in our office on April 17, 2019:

- Plans entitled Definitive Subdivision Plan of "Meadowbrook Manor" dated March 14, 2019, prepared by Summit Engineering & Surveying, Inc. for Robert G. Flynn Sr. (7 sheets)
- Correspondence from Summit Engineering & Survey, Inc. to Grafton Planning Board dated April 2, 2019 re: Application for Approval of a Definitive Subdivision Plan, 15 Meadowbrook Road, with attachments.
- Bound document entitled Stormwater Management Submittal for Meadowbrook Manor, Grafton Massachusetts dated February 24, 2019, prepared by Summit Engineering & Surveying, Inc. for .Sugar Realty Trust.

Graves Engineering, Inc. (GEI) has been requested to review and comment on the plans' conformance with applicable "Rules and Regulations Governing the Subdivision of Land; Grafton, Massachusetts" revised through April 27, 2009; "Grafton Zoning By-Law" amended through May 14, 2018, Massachusetts Department of Environmental Protection (MassDEP) Stormwater Handbook and standard engineering practices.

Our comments follow:

Zoning By-Laws

1. GEI reviewed the plans for conformance with the Zoning Bylaw and found the plans to be in order.

Subdivision Rules & Regulations

2. GEI reviewed the waiver requests submitted with the application package and has no engineering-related concerns except as noted in the following comment.

3. There is no levelling area for the proposed roadway; there is a proposed 5.8% grade where the subdivision roadway intersects Meadowbrook Road. The 5.8% grade is steeper than the existing grade. A levelling area of 100 feet with a maximum grade of 3% is required and a

waiver was requested. The design engineer should perform an analysis of the vertical alignment of the intersection and demonstrate that the Fire Department's ladder truck (which has a long chassis overhang at the rear of the vehicle) can enter and exit the subdivision road without the vehicle's overhang striking the ground. If not already done, the Planning Board may wish to solicit comments from the Fire Department relative to the proposed subdivision. (§4.1.5.6.a & §4.1.5.3)

4. The plans need to identify the proposed materials and dimensions of the bounds along the right-of-way. (§3.3.3.10 and §4.8.1)

5. The plans should note what flood zone (if any) the project is located within and reference the relevant FEMA Floor Insurance Rate Map (FIRM). (§3.3.3.17.b)

6. The soil test pit log for test hole 818-9 (the test pit at the stormwater basin) needs to be submitted; it could be included in the stormwater report or on the plans. (§3.3.3.18.a)

7. The plans need to clarify that underground electric utilities are proposed to service the two new lots. (§3.3.3.18.c)

8. There is a proosed roadway cross pitch of 1/6" per foot (1.4%) indicated on the cross section construction detail of the roadway, and the roadway has a grade of 8% in some areas. The cross slope should be no less than 2% to better direct stormwater to the roadside swale, and a cross pitch of up to 4% would be more appropriate where the road has steeper (e.g. 8%) grades. (§4.1.5.4)

9. Whereas the plans propose construction of a way essentially in accordance with common driveway requirements, the Planning Board should consider conditioning its decision such that the Town will not become responsible for ownership and maintenance of the road. Such construction would require road maintenance services that are more demanding than standard subdivision streets (e.g. maintenance of roadside swales, less maneuvering area for snow removal equipment at the turnaround).

Hydrology & MassDEP Stormwater Management Review

10. The post-development model of subcatchments P-1 and P-2 include 300 feet of sheet flow. Based upon generally accepted practices and Grafton Subdivision Rules and Regulations, there should not be more than 50 to 75 feet of sheet flow. (SR&R §3.3.3.19.b)

11. The HydroCAD model of the stormwater basin includes orifices at elevations 392.35, 392.75 and 393.25 feet that were not shown on the construction detail of the outlet control structure. The model also includes an outlet weir that is not identified on the plan or detail. The information on the plans and in the HydroCAD model needs to be coordinated and the basin must have an emergency spillway.

12. The HydroCAD calculations show that the peak water surface elevation during the 100-year storm will be 395.7 feet, which is 0.2 feet above the top of the berm (elev. 395.5). There must be a minimum of 1.0 foot of freeboard as measured between the peak water elevation and the top of the berm during this storm event.

13. Riprap must be provided at the discharge points and at the culvert pipe inlet near the road. Riprap pad sizing calculations must also be provided.

14. The narrative of the TSS removal indicates that there are catch basins on site, but none are proposed. The narrative must be revised.

15. The TSS removal calculations for the basin include an 80% removal credit for the infiltration basin. According to MassDEP, this removal credit includes adequate pretreatment (e.g. grass swales, catch basins, forebays). Thus, the grass swale is being counted twice. The design engineer may wish to consider creating a forebay at the infiltration basin's inlet to achieve the reported TSS removal credit.

16. The grass swales on site have a slope of ±10% in some areas. The design engineer should consider small check dams within the swale to reduce water velocity and enhance TSS removal.

17. The Storm Water Collection System notes on Sheet 6 reference dry wells for roof runoff, but none are proposed on the plans. The engineer must clarify and revise the documents as necessary.

18. The top-of-berm width of the stormwater basin is undefined on the plans. The plans show that there is no level area or maintenance path around the top of the basin.

19. The stormwater basin was modelled with infiltration and as such should be identified as an infiltration basin on the plans.

General Engineering Comments

20. At the end of the road, there must be a vehicle turnaround whereby the cross-slope of the vehicle is no greater than 4% throughout the turnaround maneuvers. This is typically accomplished by setting the road centerline grade to no more than 4% through a turnaround. The road centerline grades are up to approximately 5% at the turnaround.

21. The proposed 411 topographic contour on the Lot 1 driveway appears to conflict with the proposed 411 contour on the road and as such needs to be revised.

22. On Sheet 3, it would be helpful if the building setback lines were drawn on the proposed lots.

23. There are three proposed "street trees" shown along the property line of the N/F Swett property. The note for these trees references removed street trees, but it is unclear to which existing trees this note refers. Also, the proposed species of trees should be noted on the plans.

24. The culvert pipe at the entrance is identified as CMP (corrugated metal pipe) on Sheet 4, but it is identified as RCP (reinforced concrete pipe) in the profile on Sheet 5. The information must be consistent, and the piping must be concrete in conformance with SR&R §5.4.2.1. Also, the design engineer should re-evaluate the depth of the pipe. The plans propose only about ¾ of a foot of cover, which may result in cracking of the road pavement over the pipe.

25. The Landscaping notes on Sheet 6 refer to notes/information on Sheet C-5, but no landscaping notes are shown on Sheet C-5. The engineer must clarify and revise the documents.

26. A construction detail of shrub planting was provided, but none were proposed on the plans. The detail should be removed if no shrubs are proposed.

27. The construction detail of the stabilized slope references "landscaping fabric". This detail must include an appropriate specification or product and manufacturer.

28. The construction detail of the outlet structure specifies a 21" HDPE pipe. This diameter of pipe may not be readily available.

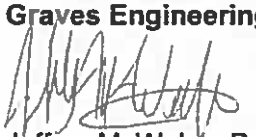
General Comments

29. The plans show wetlands along the northern boundary of the property, along the existing gravel driveway in the middle of the site, and at the intersection of Meadowbrook Road. These wetlands were not shown on the preliminary plans, and while there is no disturbance to the northern and central wetlands, there is proposed grading within the 25-foot "no alteration" buffer of the wetlands near Meadowbrook Road. GEI understands that any alterations to the wetlands or the buffer zones will be reviewed by the Grafton Conservation Commission.

30. The plans show at total of approximately 114,000 square feet of earth disturbance broken-down as follows: right-of-way and drainage basin – 55,000± sq. ft.; Lot 1 development – 30,000± sq. ft. and Lot 2 development – 29,000± sq. ft. Whereas the three areas constitute one development project and the amount of disturbance is greater than 40,000 square feet, it seems that the project must comply with the Grafton Stormwater Bylaw and Stormwater Regulations administered by the Conservation Commission. GEI did not review the project for compliance with regulations administered by the Conservation Commission but can perform such a review if the Commission so desires.

We trust this letter addresses your review requirements. Feel free to contact this office if you have any questions or comments.

Very truly yours,
Graves Engineering, Inc.



Jeffrey M. Walsh, P.E.
Principal

cc: Andrew Baum, P.E.; Summit Engineering & Survey, Inc.